What is claimed is:

- 1 1. A method for transmitting data in a wireless channel comprising:
- 2 estimating throughput for a subsequent data transfer using prefix adaptation;
- 3 estimating throughput for the subsequent data transfer using postfix adaptation;
- 4 selecting an adaptation technique for use in the subsequent data transfer based
- 5 on estimated throughput; and
- 6 transferring data using the selected adaptation technique.
- 1 2. The method of claim 1, wherein:
- 2 estimating throughput for a subsequent data transfer using prefix adaptation
- 3 includes dividing an amount of data expected to be successfully transferred during a
- 4 data transfer by an expected total duration of the data transfer.
- 1 3. The method of claim 1, wherein:
- 2 estimating throughput for a subsequent data transfer using prefix adaptation
- 3 includes estimating the throughput of a prefix adaptation frame exchange.
- 1 4. The method of claim 3, wherein:
- 2 estimating throughput for a subsequent data transfer using postfix adaptation
- 3 includes estimating the throughput of a postfix adaptation frame exchange.
- 1 5. The method of claim 1, wherein:
- 2 estimating throughput for a subsequent data transfer using prefix adaptation
- 3 includes evaluating the following equation:

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$$T_{prefix} = \frac{\left(1 - P_{collision}\right) \sum L_i \cdot \left(1 - PER(L_i)\right)}{P_{collision} \cdot D_{RTS/TCTS} + \left(1 - P_{collision}\right) \cdot D_{RTS/TCTS/DATA/TACK}}$$

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- 7 where T_{prefix} is the estimated throughput using prefix adaptation, $P_{collision}$ is the
- 8 probability that a collision occurs, L_i is the length of the *i*th packet of data that will be

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- 9 transmitted, $D_{RTS/TCTS}$ is the duration of a channel access/RTS/SIFS/TCTS sequence,
- 10 D_{RTS/TCTS/DATA/ACK} is the duration of a channel access/RTS/SIFS/TCTS/Data/Ack
- sequence, and $PER(L_i) = 1 (1 BER)^{(L_i \times 8)}$ is the probability that a packet of length
- 12 L_i will be received correctly.
- 1 6. The method of claim 1, wherein:
- 2 estimating throughput for a subsequent data transfer using postfix adaptation
- 3 includes evaluating the following equation:

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$$T_{posifix} = \frac{\left(1 - P_{collision}\right) \sum L_i \cdot \left(1 - PER(L_i)\right)}{D_{DATALTACK}}$$

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- 7 where $T_{postfix}$ is the estimated throughput using postfix adaptation, $P_{collision}$ is the
- 8 probability that a collision occurs, L_i is the length of the *i*th packet of data that will be
- 9 transmitted, $D_{DATA/TACK}$ is the duration of a channel access/DATA/TACK sequence, and
- 10 $PER(L_i) = 1 (1 BER)^{(L_i \times 8)}$ is the probability that a packet of length L_i will be
- 11 received correctly.
- 1 7. The method of claim 1, wherein:
- 2 selecting an adaptation technique for use in the subsequent data transfer includes
- 3 selecting an adaptation technique having a higher estimated throughput.
- 1 8. The method of claim 1, wherein:
- 2 estimating throughput for a subsequent data transfer using prefix adaptation
- 3 includes evaluating a number of parameter combinations.
- 1 9. The method of claim 8, wherein:
- 2 evaluating a number of parameter combinations includes evaluating a number of
- 3 combinations of fragmentation threshold, modulation type, and prefix adaptation.

2		estimating throughput for a subsequent data transfer using postfix adaptation			
3	includ	includes evaluating a number of parameter combinations.			
I	11.	A method for use in a wireless network, comprising:			
2		determining an adaptation validity duration as an estimate of the useful life of			
3	adapta	adaptation information;			
4		when data is to be transferred, determining a time T since adaptation			
5	inform	nformation was last obtained; and			
5		when T is greater than the adaptation validity duration, selecting prefix			
7	adapta	daptation for a subsequent data transfer.			
l	12.	The method of claim 11, further comprising:			
2		when T is less than the adaptation validity duration, choosing between prefix			
3	adapta	adaptation and postfix adaptation for the subsequent data transfer based upon estimated			
1	throug	throughput.			
l	13.	The method of claim 12, wherein:			
2		choosing between prefix adaptation and postfix adaptation includes:			
3		estimating throughput for the subsequent data transfer using prefix			
ļ		adaptation;			
5		estimating throughput for the subsequent data transfer using postfix			
5		adaptation; and			
7		selecting an adaptation technique having a higher estimated throughput.			
!	14.	The method of claim 11, wherein:			
2		determining an adaptation validity duration includes monitoring variation of			
3	adaptation parameters as a function of time.				

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The method of claim 1, wherein:

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15.	A method for use in a wireless network, c	Ompricing.
10.	11 modiou for use in a vincioss network, c	Omprising.

- determining a time T since adaptation information was last obtained;
- determining a postfix data transmission rate to be used when transmitting data
- 4 using postfix adaptation, based on T;
- 5 estimating throughput for a subsequent data transfer using prefix adaptation;
- 6 estimating throughput for the subsequent data transfer using postfix adaptation
- 7 and the postfix data transmission rate; and
- 8 selecting an adaptation technique to be used for the subsequent data transfer
- 9 based on estimated throughput.
- 1 16. The method of claim 15, further comprising:
- 2 transferring data using the selected adaptation technique.
- 1 17. The method of claim 15, wherein:
- determining a postfix data transmission rate includes choosing a first data
- 3 transmission rate if T exceeds a threshold value and choosing a second, different data
- 4 transmission rate if T does not exceed the threshold value.
- 1 18. The method of claim 15, wherein:
- determining a postfix data transmission rate includes evaluating an equation that
- 3 is a function of T.
- 1 19. An article comprising a storage medium having instructions stored thereon that,
- 2 when executed by a computing platform, result in:
- 3 estimating throughput for a subsequent data transfer in a wireless channel using
- 4 prefix adaptation;
- 5 estimating throughput for the subsequent data transfer in the wireless channel
- 6 using postfix adaptation;
- 7 selecting an adaptation technique for use in the subsequent data transfer based
- 8 on estimated throughput; and

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- 9 transferring data in the wireless channel using the selected adaptation technique.
- 1 20. The article of claim 19, wherein:
- 2 estimating throughput for a subsequent data transfer using prefix adaptation
- 3 includes dividing an amount of data expected to be successfully transferred during a
- 4 data transfer by an expected total duration of the data transfer.
- 1 21. The article of claim 19, wherein:
- 2 estimating throughput for a subsequent data transfer using prefix adaptation
- 3 includes estimating the throughput of a prefix adaptation frame exchange.
- 1 22. The article of claim 19, wherein:
- 2 estimating throughput for a subsequent data transfer using postfix adaptation
- 3 includes estimating the throughput of a postfix adaptation frame exchange.
- 1 23. The article of claim 19, wherein:
- 2 estimating throughput for a subsequent data transfer using prefix adaptation
- 3 includes evaluating a number of parameter combinations.
- 1 24. An apparatus comprising:
- 2 a wireless transceiver to transmit and receive wireless signals;
- a throughput estimator to estimate the throughput of a subsequent data transfer
- 4 using prefix adaptation and the throughput of the subsequent data transfer using postfix
- 5 adaptation; and
- a selector to select an adaptation technique for use in the subsequent data
- 7 transfer based on estimated throughput.
- 1 25. The apparatus of claim 24, wherein:
- 2 said selector selects an adaptation technique that has a higher estimated
- 3 throughput.

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- 1 26. The apparatus of claim 24, wherein:
- 2 said throughput estimator estimates the throughput of the subsequent data
- 3 transfer using prefix adaptation by dividing an amount of data expected to be
- 4 successfully transferred during the data transfer by an expected total duration of the data
- 5 transfer.
- 1 27. A system comprising:
- 2 at least two antennas;
- a wireless transceiver, coupled to said at least two antennas, to transmit and
- 4 receive wireless signals;
- 5 a throughput estimator to estimate the throughput of a subsequent data transfer
- 6 using prefix adaptation and the throughput of the subsequent data transfer using postfix
- 7 adaptation; and
- 8 a selector to select an adaptation technique for use in the subsequent data
- 9 transfer based on estimated throughput.
- 1 28. The system of claim 27, wherein:
- 2 said selector selects an adaptation technique that has a higher estimated
- 3 throughput.
- 1 29. The system of claim 27, wherein:
- 2 said throughput estimator estimates the throughput of the subsequent data
- 3 transfer using prefix adaptation by dividing an amount of data expected to be
- 4 successfully transferred during the data transfer by an expected total duration of the data
- 5 transfer.

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